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NOTES AND BRIEF ARTICLES

[*Unsigned notes are by the editor*]

Professor W. P. Fraser, formerly of Macdonald College, Province of Quebec, has been called to the University of Saskatchewan at Saskatoon.

Professor H. M. Fitzpatrick, of Cornell University, is engaged during the summer in field investigation of the potato wart disease for the Bureau of Plant Industry.

Nineteen new species of *Galerula* are described by Atkinson in the *Proceedings of the American Philosophical Society* **57**: 357–379. 1918.

The citrus diseases occurring commonly in Florida are treated by H. E. Stevens in Bulletin 150 of the Florida Experiment Station, which contains about 100 pages of text and 49 figures.

A new bacterial disease causing angular leaf-spot of tobacco was described by F. D. Fromme and T. J. Murray in the *Journal of Agricultural Research* for February 24, 1919.

Several new species of bacteria have been isolated from diseased portions of orchids by G. L. Pavarino, who publishes his discoveries in Atti Ist. Bot. Univ. Pavia **15**: 81–88. 1918.

Dr. J. C. Arthur publishes in the *Torrey Bulletin* for April, 1919, a number of new species of rusts, about 16 in all, from various parts of North America.

The fungous diseases attacking the persimmon in Japan are treated by T. Tanaka in the Mo. Bull. Cal. Com. Hort. **7**: 461–463. 1918.

Professor H. S. Jackson contributed a number of articles to recent volumes of the *Proceedings of the Indiana Academy of Sciences* on the Smuts and Rusts of Delaware and Indiana. These papers contain a great deal of valuable information.

An article on a wilt disease of maples, by L. A. Zimm, appeared in *Phytopathology* **8**: 80, 81. 1918. This disease is said to cause the young shoots of several common species of maples to lose their leaves and gradually die.

A descriptive list of the diseases of sugar-cane in tropical America, by J. R. Johnston and others, appeared in the *West Indian Bulletin* for 1918, pages 275 to 308. The list is a long and important one and what is there reported may be considered quite authoritative.

It is reported that because of the similarity of climate and soil conditions of Texas and the land upon which the Jewish "Republic of Judea" will be built, the Zionist Society has retained Dr. J. J. Taubenhaus, plant pathologist of the Texas Agricultural Experiment Station, for a high agricultural post in the new nation.

A list of unreported fungi for 1915 and 1916, by C. H. Kauffman, has appeared as a reprint from the 19th report of the Michigan Academy of Sciences. This list, which is quite a long one for certain families, has appended to it an index to the hosts and woody substrata of hymenomycetes in Michigan.

A text-book entitled "Applied Economic Botany," by Dr. Mel. T. Cook, has just appeared from the press of the J. B. Lippincott Company. In the 261 pages of text illustrated with 151 figures, there is a chapter on plant diseases which gives in very condensed and simple form some of the most important facts regarding this highly specialized subject.

An important paper on the Parasitism, Morphology, and Cytology of *Cronartium ribicola,* by R. H. Colley, appeared in the *Journal of Agricultural Research* for December 23, 1918. The article is illustrated with several halftones and many beautiful microscopic drawings.

In a paper on *Arcangeliella, Gymnomyces,* and *Macowanites* in North America, contributed by Zeller and Dodge to the *Annals of the Missouri Botanical Garden* for February, 1919, *Arcangeliella caudata, Gymnomyces Gardneri,* and *Macowanites echinosporus,* all from California, are described as new.

"Winter Botany" is a handy little volume written and published by Professor William Trelease in 1918, containing 394 pages of description and numerous text figures, enabling one to identify hardy plants in the winter season. This volume will be helpful especially to mycologists who are collecting fungi in the autumn and spring.

A revision of the Argentine Laboulbeniales by Spegazzini appeared in the *Anales del Museo Nacional* **29**: 445–688. 1917, a copy of which has just been received at the Garden library. The treatment of this group is very extensive and thorough, with carefully drawn descriptions and excellent text figures of 213 species, many of which are new.

A bulletin on the potato wart disease mentioned in MYCOLOGIA for January has recently been prepared by C. R. Orton and F. D. Kern of the Pennsylvania State College. The authors recommend a strict quarantine to prevent this very serious disease from being introduced into other localities.

A very extensive paper on the biology of *Polyporus pargamenus* Fries, by Arthur S. Rhoads, appeared last year as Technical Publication No. 11 of the New York State College of Forestry. In it this extremely common and widely distributed fungus is thoroughly discussed, described, and figured. The paper contains 197 pages of text and 31 plates.

The heart-rot of Western Hemlock is discussed by J. R. Weir and E. E. Hubert in Bulletin 722 of the U. S. Department of Agriculture. The fungus causing this disease, *Echinodontium tinctorium,* is ordinarily known as the Indian paint fungus, because of its use by the Indians of the Northwest for war paint. The authors suggest cutting the infected trees and destroying by fire all material that might disseminate the spores of the fungus.

An article on the wet-rot of Para rubber roots, by W. N. C. Belgrave, forms the subject of Bulletin No. 28 of the Department of Agriculture of the Federated Malay States. This disease, formerly attributed to *Poria hypolateritia,* is now said to be caused by *Fomes pseudo-ferreus.* The treatment of trees affected by this fungus is said to be of little use. Prevention by clean clearing of jungle stumps is recommended.

A new species of Amanita, *A. mutabilis,* is described by Beardslee in the March number of the *Journal of the Elisha Mitchell Scientific Society,* as occurring in white sand on Davis Island, North Carolina. The characters of this species are said to suggest a relationship to *A. pantherina* and *A. cothurnata.* The pileus is white or pale-yellowish and the context of the stipe changes to carmine in about three minutes.

An interesting account of the Physoderma disease of corn, by W. H. Tisdale, appeared in the *Journal of Agricultural Research* for February 3, 1919. This disease occurs throughout the United States as far westward as Texas and Nebraska and northward to southern Minnesota and New Jersey, considerable damage having been done in the Atlantic and Gulf coast states and in the Mississippi valley.

Dr. W. C. Coker has published another one of his valuable, handsomely illustrated articles on larger fungi of North Carolina. This article is entitled "The Hydnums of North Carolina." Almost the entire March number of the *Journal of the Elisha Mitchell Scientific Society* is devoted to this interesting group of fungi. There are many illustrations, two of them being colored plates. Banker's nomenclature is followed in the main. Three species are described as new, *Hydnellum ferrugipes, Hydnellum carolinianum,* and *Phellodon Cokeri.*

A popular article on cedar rust, by Dr. F. D. Fromme, of the Virginia Agricultural Experiment Station, appeared in the report of the twenty-third annual session of the Virginia State Horticultural Society. Dr. Fromme says: "Cedar eradication is the cheapest form of orchard insurance you can buy. The cost on the average is less than the cost of a single spray application. Cut down the cedars and you will realize the benefits. There are thousands of cedars waiting for the axe."

The development of *Stropharia epimyces* is the subject of an article by W. B. McDougall in the March number of *The Botanical Gazette.* This very interesting fungus has been placed in several genera and the fact that it always occurs as a parasite on another mushroom lends added interest to it. Regarding its identity with *Pilosace algeriensis,* as suggested by Harper, the author says: "While it is entirely possible that this may be true, our plant cannot belong to *Pilosace,* as we understand that genus, since it has an annulus and the lamellae are not free."

Several parts of Dr. Kauffman's work on the fungi of Michigan have recently appeared as reprints from Publication 26 of the *Michigan Geological and Biological Survey.* The genera treated in these reprints are *Cortinarius, Lepiota, Clitocybe, Hygrophorus, Collybia, Russula, Pholiota, Amanita,* and *Coprinus,* the last genus having been contributed by Professor Pennington. The plates to accompany Dr. Kauffman's work will not appear until the entire publication is issued. These papers contain few new species except in the genus *Cortinarius,* to which about a dozen are added.

The "Manual of Tree Diseases," by Dr. W. H. Rankin, has recently been issued by The Macmillan Company. It is a volume of about 400 pages, illustrated with 70 figures. The various diseases are classified under the trees on which they occur and the trees are arranged in alphabetical order. Subjects of a general nature are treated in the first part of the book. The author's training and experience enable him to speak with authority and this work may be recommended without reservation to mycologists, foresters and others interested in this very far-reaching and important subject.

Professor Guy West Wilson recently sent in from Clemson College, South Carolina, a specimen of *Daedalea juniperina,* collected on a red cedar trunk on the campus. The tree had been pruned and was seriously infected with the fungus on a number of the pruning wounds. This rare species of *Daedalea* was described from specimens collected at Rockport, Kansas, and was afterwards found in Missouri. Another rare fungus collected by Professor Wilson at Clemson College is *Coltriciella dependens,* which he found growing inside a rotten oak log. This species had been previously known from specimens collected on decorticated pine wood in the Carolinas and on yellow poplar wood in Florida.

Bulletin 707 of the U. S. Department of Agriculture is of peculiar interest to mycologists who have charge of herbaria because it gives the results of numerous experiments undertaken by the Bureau of Entomology with miscellaneous substances employed in destroying various insects. Among the substances used, napthalene proved effective in preventing infestation and in killing all stages of insects. Camphor did its work more slowly, while red cedar chips and pyrethrum powder were only moderately effective. The results here outlined support our own conclusions, derived from experiments and practical experience over a long period of years, that napthalene flake is the best insecticide for the herbarium of larger fungi.

In a recent paper by W. B. McDougall in *The Plant World* on the classification of symbiotic phenomena, the following statement appears: " Probably no one will dispute the status of lichens but some may object to speaking of lichens as symbiotic phenomena at all, since some prominent botanists have recently adopted the rather peculiar notion that lichens are simply fungi. The word lichen, however, has been used for a long time to mean the composite structure that results from the symbiosis of lichen-fungi with algae, and no very good reason has yet been given for changing its meaning. A lichen-fungus is a fungus; it is not a lichen. There is no more reason for calling a lichen a fungus than there is for calling a mycorhiza a fungus; and it is just as absurd to call a lichen-fungus a lichen as it would be to call a mushroom a mycorhiza."

BAHAMA FUNGI

Mr. L. J. K. Brace has been sending in a number of fungi of late, collected by him in the Bahamas. Most of the more conspicuous species in his collections are quite widely distributed in tropical America, but the following are worthy of note, especially because very little mycological work has been done in these islands:

Hypochnus spongiosus, Septobasidium cirratum, Stereum candidum, Merulius corium, Coriolus abietinus, Coriolus sericeohirsutus, Fulvifomes dependens, Fulvifomes Swieteniae, Ganoderma pulverulentum, Inonotus fruticum, Inonotus porrectus, Trametes submurina, Tyromyces palustris, Chlorophyllum molybdites, Gymnopilus tenuis, Resupinatus subbarbatulus, Stropharia floccosa, Cyathus pallidus, and *Diplocystis Wrightii.*

Polyporus Bracei sp. nov.

Pileus flabelliform to circular, depressed, thin, usually cespitose, 8–15 cm. broad, larger by confluence; surface covered with fine tomentum scarcely visible to the unaided eye, somewhat uneven, azonate, uniformly dirty-white to pale-isabelline-avellaneous, margin thin, often undulate or lobed; context soft and punky, but fragile, homogeneous, pale-yellowish, 1–5 mm. or more thick; tubes decurrent, dirty-white, turning darker when bruised, scarcely 1 mm. long, mouths very minute, irregular, variable, 4–6 to a mm.; spores ellipsoid, smooth, hyaline, minute; stipe normally central, short, enlarged at the base, colored and clothed like the pileus where not covered with whitish mycelium, reaching 3 cm. long and 2 cm. thick, sometimes reduced to a mere tubercle.

Type collected in New Providence, Bahamas, in the autumn of 1918, by L. J. K. Brace.

HABITAT: On the ground, attached to sticks and buried wood.

DISTRIBUTION: Known only from the type locality.

W. A. MURRILL

A NEW SPECIES OF LENTINUS FROM MINNESOTA

Splendid specimens of an interesting species of *Lentinus* were received for determination in August, 1917, from Dr. E. M. Freeman, who wrote me, as follows:

> "The specimens were collected at Itasca Park (Lake Itasca), Minn., on a large old log which was not identified, but probably was a conifer of some sort. The sporophores varied from four to eight (or ten) inches across and were almost uniformly flesh-colored all over. They had a very pleasant odor, somewhat resembling pineapple. They had the general appearance of a *Lentinus* with the rooting base, and the specimens which I am sending in a separate package show their non-putrescent character. The branching and anastomosing of the gills was very marked, while the teeth on the gill edge were very inconspicuous. The sporophores grew in a cluster. They have been partially eaten by squirrels or other animals. I have never seen this fungus before, although I have collected at this park for almost ten years."

Being unable to recognize Dr. Freeman's plant or to associate it definitely with any known herbarium specimen or description, I have decided to publish it as new and to dedicate it to the discoverer.

Lentinus Freemanii sp. nov.

Pileus very large, circular, plane, cespitose, 10–20 cm. or more broad; surface dry, finely hispid-tomentose, uniformly dark-rosy-isabelline when fresh, becoming somewhat paler on drying; context white, unchanging, reaching 4 cm. in thickness near the center, eaten by squirrels or other animals, having a pleasant odor resembling that of pineapples; lamellae long-decurrent, thin, very narrow and very crowded, branched and anastomosing, rosy-isabelline, becoming dark-purplish-brown when bruised, very slightly dentate on the edges, usually splitting into plates or lacerate with age; spores narrowly-oblong, usually curved and pointed at one end, smooth, hyaline, $9–11 \times 3.5 \mu$; stipe central, curved, solid, rather slender, usually enlarged near the base and expanding into the pileus at the apex, clothed and colored like the pileus where not covered with decurrent lamellae, 8–15 cm. long, 2–4 cm. thick.

Type collected at Itasca Park, Minnesota, August, 1917, by E. M. Freeman.

Habitat: On an old log, probably of a conifer.

Distribution: Known only from the type locality.

W. A. Murrill

Fungi from Ecuador

In the autmun of 1918, Dr. J. N. Rose collected a number of woody and fleshy fungi in Ecuador and sent them to the Garden for determination and distribution. Most of the gill-fungi were small, poorly preserved, and without notes, but the woody forms came through in very good condition. *Pyropolyporus inflexibilis,* from Portovelo, and *Cookeina sulcipes,* from Bucay, were represented by single specimens that could not easily be divided. Three sets were made of the species listed below, one going to Washington, one to Harvard, and one remaining here. The great majority of these species were collected in the vicinity of Huigra; several at Ventura and Bucay; and a few at Portovelo, Loja, Durân, Cumbe, Cañar and Tablón de Oña.

Species deserving special mention are: *Gymnopus tenuipes* (Huigra); *Crepidotus calolepidoides* (Tablón de Oña); *Fomes subferreus* (Cañar); *Trametes lignea* (Huigra), previously known only from one collection made in Nicaragua; and *Lentinus hirtiformis* (Ventura), previously known only from British Honduras. The specimens of this last species obtained by Dr. Rose in Ecuador are much larger than the types, and the stipes are covered with a brown, velvety tomentum.

Species Distributed

- *Auricularia Auricula*
  - *nigrescens*
- *Coriolopsis occidentalis*
  - *rigida*
- *Coriolus maximus*
  - *pavonius*
  - *versicolor*
- *Crepidotus calolepidoides*
- *Daedalea amanitoides*
- *Earliella corrugata*
- *Elfvingia tornata*
- *Favolus tenuis*
- *Fomes subferreus*
- *Fomitella supina*
- *Gloeoporus candidus*
- *Gymnopus tenuipes*
- *Hapalopilus gilvus*
  - *licnoides*
- *Hymenochaete Sallei*
- *Lentodiellum concavum*
- *Lentinus crinitus*
  - *hirtiformis*
- *Pogonomyces hydnoides*
- *Polyporus tricholoma*
- *Pycnoporus sanguineus*
- *Rigidoporus surinamensis*
- *Schizophyllus alneus*
- *Trametes lignea*

W. A. Murrill

QUEER FUNGOUS GROWTHS

The peculiar growth figured herewith was sent to me last November by Dr. J. J. Taubenhaus, of the Texas Agricultural Experiment Station, who obtained it from Mr. J. S. Watson, of Stephenville, Texas. Mr. Watson says that this growth, known locally as "oil bloom" or "gas stool," appears in the springtime year after year on a small area of land where gas has been found. "It is in no way connected with any kind of timber," writes Mr. Watson, "as it grows out in the open on a farm which has been in cultivation for quite a number of years; and is on high, dry, sandy land; and it grows above the surface and is not plowed up; and there is no weed growth of any kind that grows with it. Some of the stools are very much larger than the ones I sent, and when they are forming they look very much the color of Baumont crude oil."

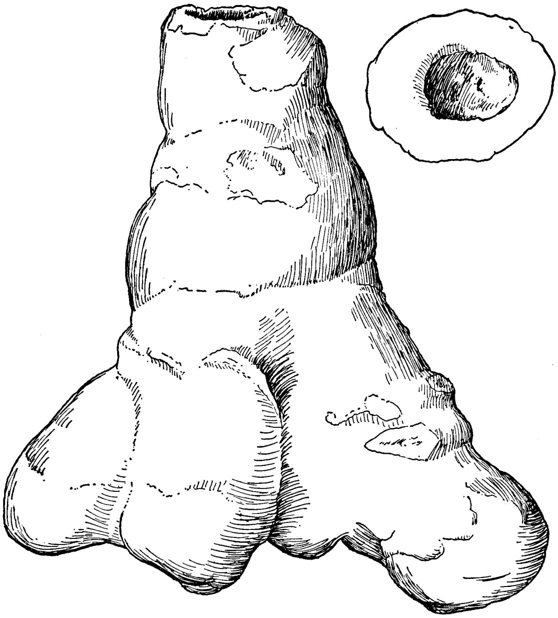

FIG. 1. A specimen of "oil bloom" from Texas, one-half natural size.

Peculiar sterile forms like these should be studied where they occur by a competent mycologist, but a brief discription can do no harm and some conjectures as to their probable nature and origin may be of sufficient interest to lead to further investigation.

I have two specimens, one simple and the other branched as shown in the figure, so as to resemble a clumsy foot of bird or beast with two double toes. The branched one shows four zones of growth, and, about an inch from the tips of the spreading "toes," the color changes from uniform dark-avellaneous with a brownish tint to dirty-white with here and there a creamy tint, which is also the color of the interior. If there is a cortex, it is very thin and chiefly distinguished by the change in color, but there is a definite tendency in the growths to take definite shape and limit their development both laterally and longitudinally.

These growths are heavy and almost entirely composed of sand, which may be felt over the whole surface and seen under a hand lens intimately mixed with fungous mycelium. The central core is free from sand, being composed of the decayed remains of a root or other form of vegetable matter showing large vascular elements. Sand is also absent from the growing tips of both specimens in one or two limited areas where the mycelium has massed on the surface in a thin white layer or in the form of brown punky tissue as though a fruiting surface of some kind were about to be formed.

It is probable that these masses of mycelium developed in association with roots surrounded by sand, which was intimately included by the mycelium as it grew. It may be that the sand was moist when the growths developed and afterwards became dry and shifted so as to reveal the growths. Forms similar to these often occur in mines and other dark places where developing sporophores are seeking the light; the darkness causing them to remain sterile and very abnormal in form and color. The Tuckahoe is an underground sclerotium, or mass of resting mycelium, which sends up a sporophore when the proper time arrives and the conditions are suitable.

W. A. MURRILL